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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,352	08/15/2003	Youqi Wang	SYMXP011	1608
47472 7590 10/31/2007 Law Offices of Cindy Kaplan/Symyx P.O. BOX 2448 SARATOGA, CA 95070			EXAMINER VAN, LUAN V	
			ART UNIT	PAPER NUMBER
			1795	
			MAIL DATE	DELIVERY MODE
			10/31/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/642,352

Applicant(s)

WANG ET AL.

Examiner

Luan V. Van

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) 29-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28, 48-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 9/18/07
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 18, 2007 has been entered.

### ***Response to Amendment***

Applicant's amendment of September 18, 2007 does not render the application allowable.

### ***Status of Objections and Rejections***

All rejections from the previous office action are withdrawn in view of Applicant's amendment. New grounds of rejection under 35 U.S.C. 103(a) are necessitated by the amendments.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites "a plurality of openings" and "a mask having a plurality of openings". It appears that these openings are different. It is suggested that the applicant amend the claim to recite "a holder block having a plurality of openings" to distinguish these openings from the openings of the mask.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5, 9, 10, 12-21, 23, 27, 28 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donne in view of Miller et al.

Regarding claim 1, Donne teaches a system for preparing electrochemical materials, the system comprising a high temperature synthesis device for preparing an array of electrochemical materials as electrolytic surfaces of working electrodes, at least a portion of the electrolytic surfaces being defined by different materials, the device comprising: a plurality of openings (in base 10 of Fig. 2 and Fig. 3) for receiving the array of working electrodes 22; and a mask (i.e., base 10) having a plurality of openings configured for exposing at least a portion of each of the working electrodes for forming the electrolytic surfaces on the working electrodes.

Donne differ from the instant claims in that the reference does not explicitly teach exposing only a portion of an end surface of the working electrode.

However, it is conventionally known in the art to use a mask to define a pattern for deposition or other processes. Miller et al., for example, during deposition, the substrate surface can be masked prior to deposition to define an electrode comprising an array of microelectrodes, as shown in Fig. 1 (column 5 lines 29-38). The deposited layer can also be laid down in other electrode shapes, such as rings or disks.

Alternatively, the substrate sheet coated with the film can be cut into desire shapes and using the preparation of rotating disk electrodes, rotating ring disk electrodes, and the like (column 5 lines 43-48).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Donne by using a mask to expose only a portion of an end surface of the working electrode in order to form a deposited material on the working electrode having a desired pattern or shape as

suggested by Miller et al. (column 5 lines 43-45). Furthermore, it would have been obvious to one having ordinary skill in the art modified the method of Donne by using a mask to expose only a portion of an end surface of the working electrode as suggested by Miller et al., because the plurality of openings in the mask can be used to deposit the same amount of material on the end surface of the working electrodes, thus enabling the material to be accurately characterized.

Regarding claim 2 and 3, Donne teaches the device is made of a ceramic material (column 7 lines 36-38), which is the same material as that of the instant device and thus would be capable of being operated at a temperature of at least 300° C.

Regarding claim 4, Donne teaches the electrodes are detachable from the device (column 7 lines 56-67).

Regarding claim 5, Donne teaches the device is configured for receiving an array of 16 working electrodes (Fig. 1).

Regarding claim 9, Donne teaches the device comprises a holder block 50A in Fig. 3 with openings formed therein.

Regarding claims 10, 15 and 18-21, Donne differs from the instant claims in that the reference does not explicitly teach cylindrical shape (claim 10), a plurality of openings in the back plate (claim 15), or tapered openings (claims 18-21).

Addressing claim 10, Donne teaches a rectangular shaped structure as seen in Fig. 1. It would have been obvious to one having ordinary skill in the art to have modified the shape of the device absent persuasive evidence that the particular configuration of the claimed device is significant. MPEP 2144.04 (IVB).

Addressing claim 15, Donne teaches a mask or base 10 and body or housing 50A having a plurality of openings formed therein. Further, Donne teaches the back plate or housing 50B having an opening 56. It would have been obvious to one having ordinary skill in the art to have modified the back plate to have a plurality of openings, because it would be an obvious duplication of essential subject matter, and because it would allow individual electrodes to be independently controlled.

Addressing claims 18-21, it would have been obvious to one having ordinary skill in the art to have modified the shape of the openings absent persuasive evidence that the particular configuration of the claimed device is significant. MPEP 2144.04 (IVB).

Regarding claim 12, Donne teaches the holder block 50A is formed from a polymer material (column 9 lines 58-59).

Regarding claim 13, Donne teaches the mask is attached to the front surface of the holder block (Fig. 3).

Regarding claim 14, Donne teaches the device comprises a back plate 50B (Fig. 3) for retaining the working electrodes within the device.

regarding claim 16 and 17, Donne differs from the instant claims in that the reference does not explicitly teach an electrochemical cell for receiving the array. Miller et al. teach an electrochemical cell comprising a cavity for containing a liquid electrolyte and sized for receiving at least a portion of the rate of working electrodes installed in the device (Fig. 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Donne by using the

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electrochemical cell of Miller et al., because it would allow metal to be electrochemically deposited on the working electrodes.

Regarding claim 23, Donne teaches the mask is formed of a ceramic material (column 7 lines 36-38).

Regarding claim 27, Donne teaches the mask is formed of Teflon (column 9 lines 58-59).

Regarding claim 28, the device of Donne is structurally capable of having electrocatalysts formed on the electrodes.

Regarding claim 48, Donne teaches a system for preparing electrochemical material, the system comprising a high temperature synthesis device for preparing an array of electrolytic surfaces of working electrodes each comprising a body (i.e., holder 12 is interpreted as the body in the instant claim) and an insert (i.e., electrodes 22) supported by the body, the electrolytic surfaces being formed by electroplating (column 4 lines 44-48), the device comprising a holder block (base 10) having a plurality of openings formed therein for receiving the array of working electrodes positioned such that a portion of the insert is exposed for forming the electrolytic surface thereon.

Donne differ from the instant claims in that the reference does not explicitly teach exposing only a portion of an end surface of the working electrode.

However, it is conventionally known in the art to use a mask to define a pattern for deposition or other processes. Miller et al., for example, during deposition, the substrate surface can be masked prior to deposition to define an electrode comprising an array of microelectrodes, as shown in Fig. 1 (column 5 lines 29-38). The deposited



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layer can also be laid down in other electrode shapes, such as rings or disks.

Alternatively, the substrate sheet coated with the film can be cut into desire shapes and using the preparation of rotating disk electrodes, rotating ring disk electrodes, and the like (column 5 lines 43-48).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Donne by using a mask to expose only a portion of an end surface of the working electrode in order to form a deposited material on the working electrode having a desired pattern or shape as suggested by Miller et al. (column 5 lines 43-45). Furthermore, it would have been obvious to one having ordinary skill in the art modified the method of Donne by using a mask to expose only a portion of an end surface of the working electrode as suggested by Miller et al., because the plurality of openings in the mask can be used to deposit the same amount of material on the end surface of the working electrodes, thus enabling the material to be accurately characterized.

Regarding claim 49, Donne teaches the device is made of a ceramic material (column 7 lines 36-38), which is the same material as that of the instant device and thus would be capable of being operated at a temperature of at least 300° C.

Regarding claim 50, Donne teaches the electrodes are detachable from the device (column 7 lines 56-67).

Claims 6-8 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donne in view of Miller et al., and further in view of Admitted Prior Art.

Donne and Miller et al. teach the apparatus as described above. Donne differs from the instant claims in that the reference does not explicitly teach rotating disk electrodes. However, Donne teaches an electrically insulating body 50A (Fig. 3) and an electrically conductive insert 22 supported by the body. Furthermore, Admitted Prior Art discloses on pages 1-2 that rotating disk electrodes are conventionally known for using the electrochemical screening systems.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Donne and Miller et al. by using rotating disk electrodes as taught by the Admitted Prior Art, because such electrodes would be useful for screening electrochemical reactions.

Claims 11 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Donne in view of Miller et al., and further in view of Perlman.

Donne and Miller et al. teach the apparatus as described above. Donne differs from the instant claims in that the reference does not explicitly teach the holder and mask is made of stainless steel.

Perlman teaches an electrode holder made of stainless steel (column 8 lines 18-38).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Donne and Miller et al. by having made the holder and mask out of stainless steel as taught by Perlman, because it would

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be resistant to the destructive action of electrolyte and other elements (column 8 lines 18-38 of Perlman).

Claim 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donne in view of Miller et al., and further in view of Glass et al.

Donne and Miller et al. teach the apparatus as described above. Donne differs from the instant claims in that the reference does not explicitly teach a silicon mask.

Glass et al. teach a detector using a silicon wafer for masking the microelectrodes (Fig. 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Donne and Miller et al. by using the silicon mask of Glass et al., because selection of a known material based on its suitability for its intended use, such as a mask, is prima facie obviousness. Further, it would have been obvious to have expected that an opening in a silicon substrate would have the angle of the instant claim, because a silicon wafer would have a crystal orientation of the same angle.

### ***Response to Arguments***

Applicant Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan V. Van whose telephone number is 571-272-8521. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LWV  
October 24, 2007

  
NAM NGUYEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700